

WHAT IS CLAIMED IS:

1. A transmission apparatus utilizing an SDH (Synchronous Digital Hierarchy), comprising:

a processing unit controlling said transmission apparatus;

10           an SSM (Synchronization Status Message)  
extraction unit extracting a first SSM from an input  
signal; and

a selector selecting either of said first SSM and a second SSM set by said processing unit.

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2. The transmission apparatus as claimed  
20 in claim 1, further comprising a protection unit  
validating said first SSM after receiving said first  
SSM consecutively for a fixed number of times.

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3. The transmission apparatus as claimed in claim 1, further comprising:

30 a first switching unit selecting a timing source among a plurality of timing sources by detecting a change in said first SSM;

a second switching unit selecting the timing source among said plurality of timing sources by detecting a condition in which all the timing sources are unavailable; and

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a third switching unit selecting one of said first switching unit and said second switching

unit for selecting the timing source.

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4. The transmission apparatus as claimed in claim 3, further comprising a switch protection unit protecting a timing-source switch operation performed by said first switching unit or said second switching unit.

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5. The transmission apparatus as claimed in claim 3, further comprising a switchback protection unit protecting a timing-source switchback operation performed by said first switching unit or said second switching unit.

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6. A transmission apparatus utilizing an SDH (Synchronous Digital Hierarchy), comprising:  
a processing unit controlling said transmission apparatus;  
an S1-byte extraction unit extracting a first SSM (Synchronization Status Message) from an S1 byte of an input STM (Synchronous Transport Module) signal;  
a memory unit storing a second SSM set by said processing unit; and  
a selector selecting either of said first SSM and said second SSM.

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7. A transmission apparatus utilizing an SDH (Synchronous Digital Hierarchy), comprising:

a memory; and

a state-transition management unit,

5 wherein said state-transition management unit shifts an operation mode from a forced freerun operation mode to an auto selection freerun mode that resets the memory used for a holdover operation, according to a direction by a client, said forced  
10 freerun operation mode being an operation mode starting after said transmission apparatus is powered on.

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8. The transmission apparatus as claimed in claim 7, wherein said state-transition management unit shifts the operation mode from said auto  
20 selection freerun mode to a first auto selection locked mode updating said memory, after priority orders have set for a plurality of timing sources.

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9. The transmission apparatus as claimed in claim 8, wherein said state-transition management unit shifts the operation mode from said first auto  
30 selection locked mode to said auto selection freerun mode if all the timing sources whose priority orders have been set are invalid when said memory has not been updated for one cycle.

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10. The transmission apparatus as claimed in claim 8, wherein said state-transition management unit shifts the operation mode, after said memory has been updated for one cycle, from said first auto selection locked mode to a second auto selection locked mode in which said transmission apparatus constantly updates said memory.

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11. The transmission apparatus as claimed in claim 10, wherein said state-transition management unit shifts the operation mode from said second auto selection locked mode to a holdover mode if all the timing sources whose priority orders have been set are invalid.